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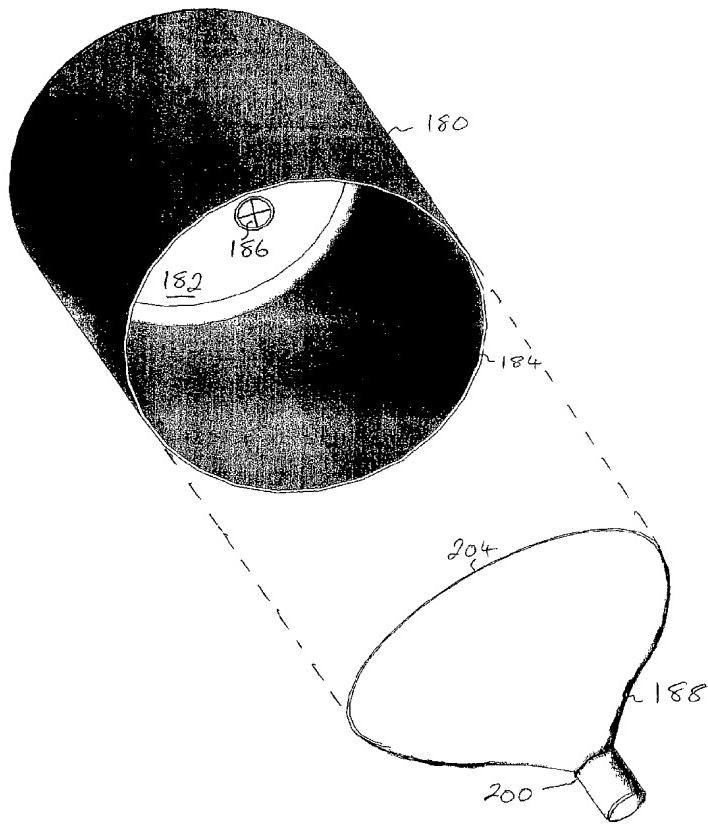
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*[Continued on next page]*

(54) Title: DISPOSABLE CONTAINER FOR SPRAY GUNS AND THE LIKE



(57) Abstract: A non-collapsible disposable container (180) for use with a paint spray gun (10), said container (180) provided with means (200) for securing the container (180) to said spray gun (10), a cover portion (188), an opposite end wall (182) opposing the cover portion (188), and a one-way flow valve (186) located in the end wall to allow air to enter the container (180) but prevent paint from exiting the container through said valve (186).

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM,

PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

**DISPOSABLE CONTAINER FOR SPRAY GUNS AND THE LIKE****FIELD OF THE INVENTION**

The present invention relates to disposable containers for accommodating paint or other substances. The invention is particularly applicable although not limited to use with spray guns and especially paint spray guns.

**BACKGROUND OF THE INVENTION**

A paint spray gun comprises a manifold having a paint container attached thereto.

10 The manifold communicates with a source of fluid under pressure - for example, compressed air - and is provided with a nozzle through which paint is dispensed. Paint is introduced into the manifold so that paint droplets become entrained in the air flowing therethrough from the compressed air supply and exit the nozzle as a spray. The paint container may be attached above the manifold so that the paint is introduced into the  
15 manifold by gravity flow or underneath, in which case a tube is provided which extends into the container to siphon paint from the container into the manifold.

A problem with this arrangement is that the container must be cleaned after each use, so that the paint residue does not contaminate contents of the container in a subsequent application. For example, if the gun is to be used with paints of different  
20 colours at different times, the container must be cleaned after each use to ensure that no paint residue is left behind which would discolour or otherwise contaminate the paint used in a subsequent application. Cleaning the container is time-consuming and not always completely successful.

One approach to the foregoing problem has been to provide a disposable liner for  
25 the container. An example may be found in Canadian application no. 2,277,096. In this arrangement, the liner is made to be collapsible so that as the volume of paint diminishes during use of the gun, the volume of the liner also diminishes, whereby internal vacuum is avoided. This necessitates a relatively expensive fabrication process for the liner which results in a relatively costly product.

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**BRIEF SUMMARY OF THE INVENTION**

The present invention seeks to improve upon these prior art arrangements by providing a non-collapsible container which is disposable and which does not require the 5 extra complexity and cost of a separate collapsible liner.

**BRIEF DESCRIPTION OF THE DRAWINGS**

Embodiments of the present invention will now be described, by way of example only, with reference to the attached Figures, wherein:

Figure 1 shows a gravity flow paint spray gun to which the invention may be 10 applied;

Figures 2-4 are exploded views showing first, second and third embodiments of the invention.

**DETAILED DESCRIPTION**

A typical gravity flow paint spray gun is schematically shown in Figure 1. The gun 10 comprises a manifold 12 communicating with a fitting 14 which is adapted for connection to a compressed air supply hose (not shown). The manifold 12 also communicates with a nozzle 16. A trigger (also not shown) is provided to open or close 20 the compressed air supply to the manifold 12. A paint container 18 is attached to a fitting 20 on the manifold 12. When the trigger is depressed, compressed air flows through the manifold and draws paint from the container through the fitting 20 so that paint droplets become entrained in the air and exit the nozzle 16 as a spray.

Figure 2 shows a disposable container according to one embodiment of the 25 invention, the container having a main body portion 180, which is closed at one end by an end wall 182 and is open at the opposite end 184. A one-way valve 186 is provided in the end wall 182 so that air can enter the container but paint cannot exit the container. A conical cover 188 is provided for the open end 184 and has a fitting 200 for attachment to the fitting 20 on the spray gun by any suitable means - for example, by means of a screw 30 threaded or bayonet attachment. The cover 188 is provided with a gasket 202 around its periphery 204 (see Figure 3) in order to seal the container when the cover is in place.

In use, the open container is charged with paint and the periphery 204 of the cover 188 is then placed over the open end 184 and secured thereto, with the gasket 202 serving to provide a liquid-tight seal between the cover and the main body portion 180. The attachment of the cover to the main body portion can be by any suitable means, such as by providing the cover and the container with complementary bayonet fittings or screw threads. With the cover secured to the main body portion, the spray gun may be introduced to the cover by turning the gun upside down and engaging the fitting 20 with the fitting 200. Once the fittings 20 and 200 are securely engaged, the spray gun and container may safely be inverted to provide the orientation shown in Figure 1, without leakage of paint from the container. After use of the container in the foregoing embodiment, it is simply removed from the spray gun, and the main body portion detached from the cover and discarded. If desired, a filter (not shown) may be placed in the mouth of the cover to prevent any contaminants in the paint from being introduced into the spray gun.

The cover 188 may be re-usable or disposable. If the cover is to be re-usable, it may either be washed after use to remove paint residue or it may be provided with a liner 206, as in Figure 3. The liner is placed inside the cover before the cover is attached to the paint-filled main body portion 180, and keeps the cover clean by preventing paint from contacting the interior surface of the cover.

In an alternative embodiment shown in Figure 4, the cover (including a fitting 300 for attachment to the spray gun fitting 20 analogously to the fitting 200 of Figures 1-3) and the main body portion are formed as an integral unit 280, and may again be provided with a filter (not shown) at the junction between the cover and the container to prevent contaminants in the paint from being introduced into the spray gun. In this case, instead of an end wall, the main body portion is provided with an end cap 282, which is detachably secured to the main body portion, for example, by means of complementary screw threads provided on the container and the end cap. The entire unit 280 is disposable, except for the end cap 282 which may either be reusable or disposable. The end cap 282 is provided with a one-way valve 286 for the same purpose as the one-way valve 186 of Figure 2. This embodiment has the advantage that the unit 280 can be secured to the spray gun with the latter in its normal orientation - i.e., with the container and cover inverted on top of the spray gun - the main body portion can be charged with paint and the container 280 then sealed by securing thereto the end cap 282. After use of the container in the foregoing embodiment, it is simply removed from the spray gun and disposed of. The end cap 282

may either be detached from the container for washing and re-use or may be disposed of with the rest of the container

As noted above, an advantage of the present invention is that by use of the one-way valve, the container need not be made collapsible. The use of a rigid container also provides the advantage that the container can either be disposed of after each use or stored and re-used when the same paint colour is to be applied with each use of the container. For example, a number of containers could be stored and re-used a number of times before eventual disposal, each one dedicated to a specific paint colour. This would provide additional cost-savings.

The above-described embodiments of the present invention are intended to be examples only. Alterations, modifications and variations may be effected to the particular embodiments by those of skill in the art without departing from the scope of the invention, which is defined solely by the claims appended hereto.

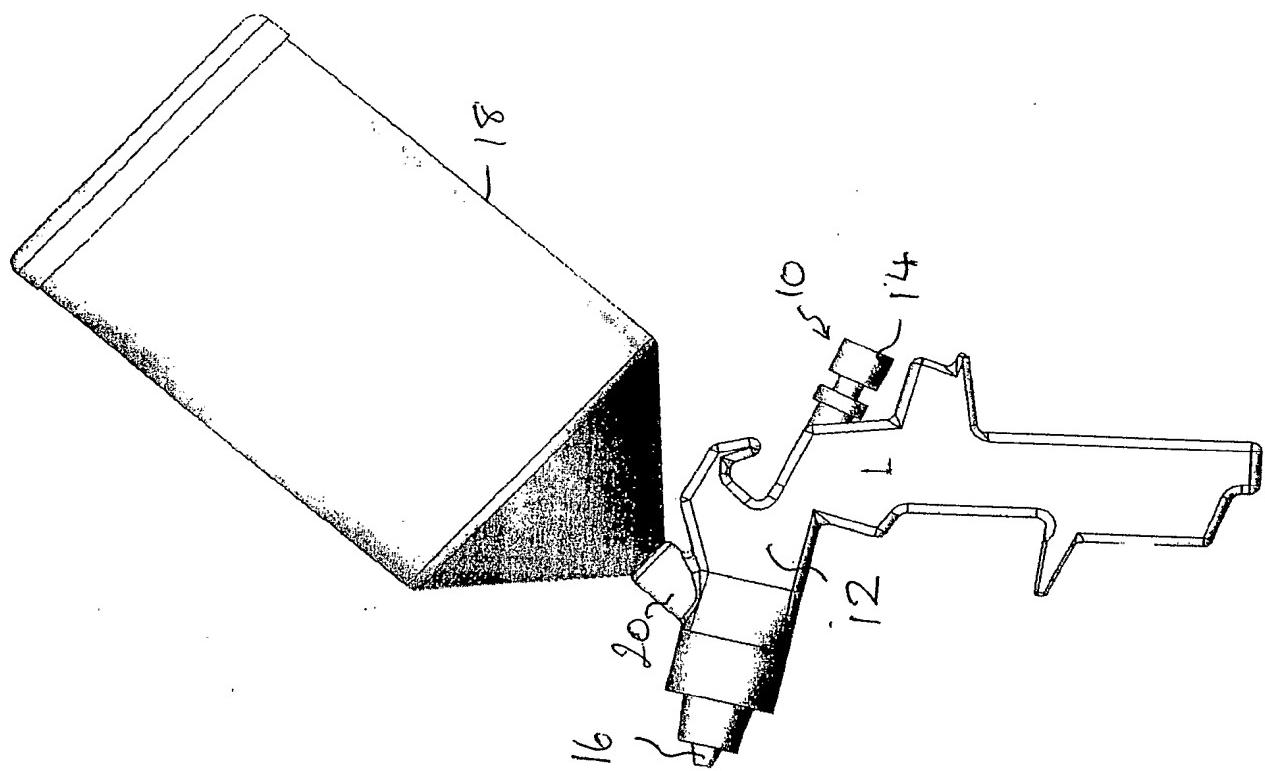
**CLAIMS:**

1. A non-collapsible container for use with a paint spray gun or the like, said container comprising a disposable main body portion having first and second ends, said 5 container being closed at one end and provided with a cover portion at its opposite end, means for securing said cover portion to a paint supply port on said paint spray gun or the like to provide a conduit for paint from said main body portion to said paint supply port, and said container being provided with a one-way valve to allow air to enter the container but prevent paint from exiting the container through said one-way valve.
- 10 2. A non-collapsible, disposable container as defined in claim 1, wherein said main body portion is closed at said one end by an end wall having said one-way valve therein.
- 15 3. A non-collapsible, disposable container as defined in claim 1 or 2, wherein said cover portion is provided with a liner to prevent contamination of said cover portion by said paint.
- 20 4. A non-collapsible, disposable container as defined in claim 1, wherein said cover portion is formed integrally with said main body portion and said one end of said main body portion is closed by an end cap detachably secured to said main body portion and having said one-way valve therein.

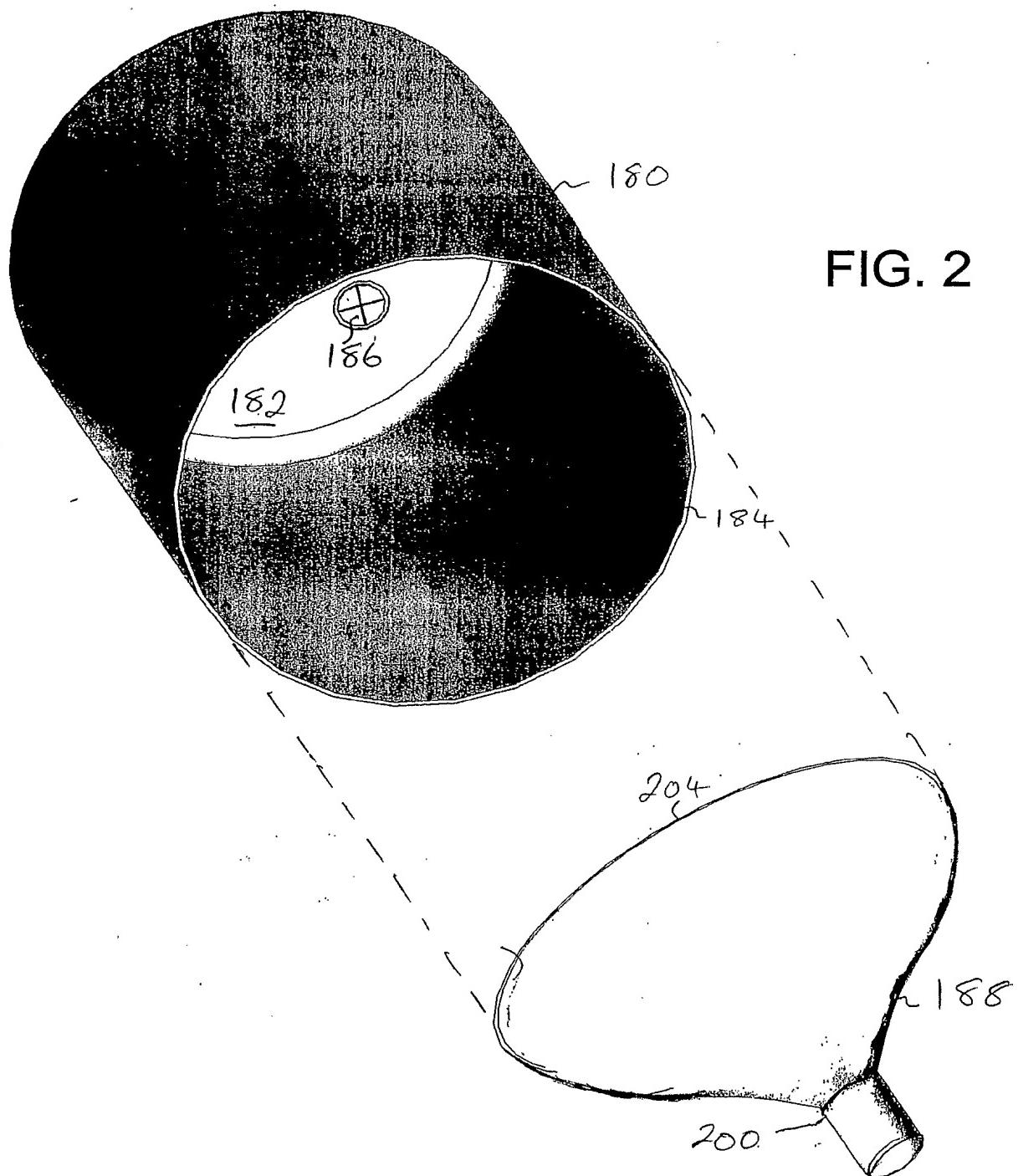
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FIG. 1

PRIOR ART



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3/4

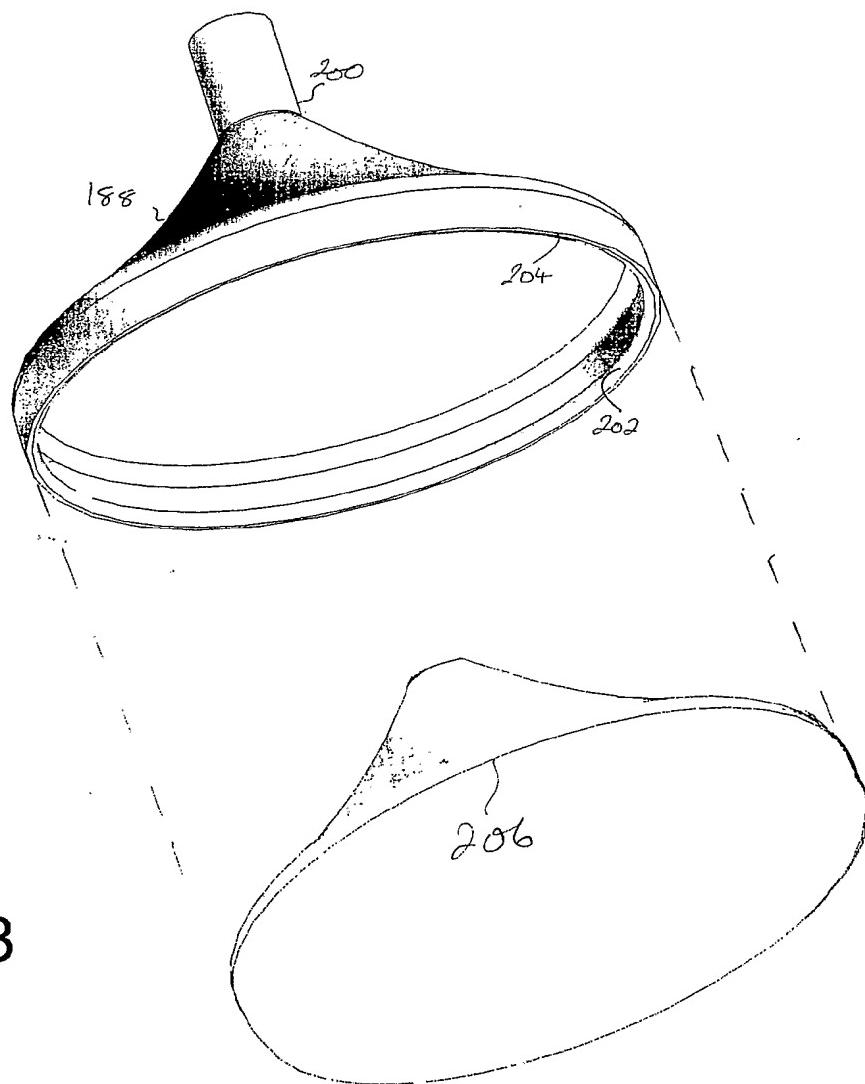


FIG. 3

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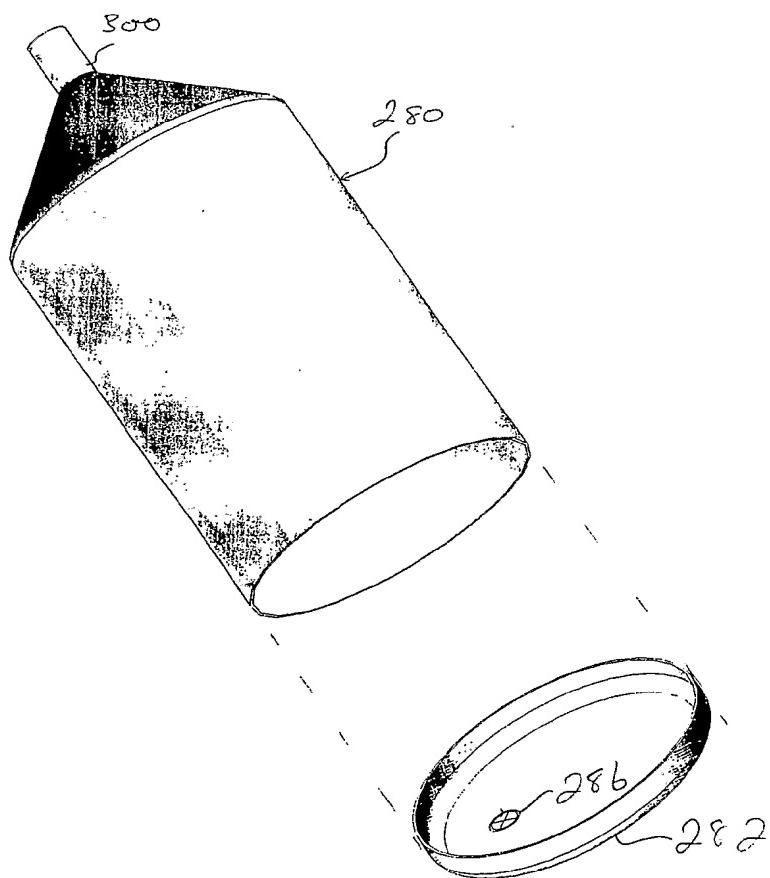


FIG. 4

# INTERNATIONAL SEARCH REPORT

International application No.  
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## A. CLASSIFICATION OF SUBJECT MATTER

IPC<sup>7</sup>: B44D 3/12; B05B 9/03; B65D 51/16

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC<sup>7</sup>: B44D 2/00 to 7/00; B05B 1/00 to 17/08; B65D 51/16 USPC: 239/302; 239/345

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

Delphion, Esp@cenet, Canadian Patent Database, Internet

Keywords: container, spray gun, gravity feed, top cup, disposable, paint

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	EP 987060 A1 (CAMILLERİ, M) 22 March 2000 (22-03-2000)	1,2
Y	*Whole document*	3
X	US 6435426 B1 (COPP, Jr. W) 20 August 2002 (20-08-2002) *Whole document*	4
Y	CA 2277096 A1 (MINNESOTA MINING AND MANUFACTURING) 30 July 1998 (30-07-1998) *Whole document*	3
A	CA 2219842 B1 (RANSBURG CORPORATION) 16 June 1998 (16-06-1998) *Whole document*	1-4
A	US 6536687 B1 (3M INNOVATIVE PROPERTIES) 25 March 2003 (25-03-2003) *Whole document*	1-4

[ ] Further documents are listed in the continuation of Box C.

[ X ] See patent family annex.

- \* Special categories of cited documents :
- "A" document defining the general state of the art which is not considered to be of particular relevance
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- "P" document published prior to the international filing date but later than the priority date claimed

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- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
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Date of the actual completion of the international search	Date of mailing of the international search report
4 March 2005 (04-03-2005)	10 May 2005 (10-05-2005)
Name and mailing address of the ISA/CA <i>Canadian Intellectual Property Office Place du Portage I, C114 - 1st Floor, Box PCT 50 Victoria Street Gatineau, Quebec K1A 0C9</i>	Authorized officer Heather Donnelly (819) 934-3470
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No. <b>PCT/CA2005/000026</b>
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